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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/458,123	12/08/1999	BLAINE R. SPADY	M-7677-US	8470
34036	7590	06/15/2005	EXAMINER	
SILICON VALLEY PATENT GROUP LLP			STOCK JR, GORDON J	
2350 MISSION COLLEGE BOULEVARD				
SUITE 360			ART UNIT	PAPER NUMBER
SANTA CLARA, CA 95054				2877

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EK

Office Action Summary	Application No.	Applicant(s)	
	09/458,123	SPADY ET AL.	
	Examiner	Art Unit	
	Gordon J. Stock	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 23 March 2005.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-9 and 15-24 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,2,7-9 and 21-24 is/are rejected.

7) Claim(s) 3-6 and 15-20 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 10 August 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date. _____.
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 20040630. 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

Claim Objections

1. **Claims 4-5** are objected to for the following: for **claim 4** “rotate” should read –rotated--; for **claim 5** line 2 “from optical system” should read –from the optical system--. Corrections required.
2. **Claims 15-16** are objected to for the following: for claim 15 line 4 “the optical systems” lacks antecedent basis; for claim 16 line 2 “an optical system” should read “the optical system” and line 3 “the optical systems” lacks antecedent basis. Corrections required. **Claims 17-20** are objected for being depended upon an objected base claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1, 2, and 8** are rejected under 35 U.S.C. 102(e) as being anticipated by **Finarov (6,038,029)**—cited by applicant.

As for **claims 1, 2, and 8**, Finarov in a method and apparatus for alignment of a wafer discloses the following: positioning a wafer at a fixed station (col. 4, lines 40-45); aligning an optical system to the wafer, wherein aligning comprises: moving the optical system as required to locate an edge of the wafer; and moving the optical system to follow the edge of the wafer and locating an alignment feature on the edge of the wafer while the wafer is held linearly and

rotationally stationary on the fixed station; and moving the optical system relative to the wafer to inspect a plurality of separate inspection areas on the wafer (col. 4, lines 40-60; col. 5, lines 1-25); the fixed station is inside a processing apparatus, a fab station (col. 4, line 22); the optical system views the wafer from outside the processing apparatus through an optical window (col. 4, line 39); wherein after locating the alignment feature on the edge of the wafer, aligning the optical system further comprises processing an image of an area of the wafer using an image recognition module to more precisely determine the orientation of the wafer (col. 5, lines 10-50).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 7 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Finarov (6,038,029)**—cited by applicant in view of **Cheng (5,546,179)**—previously cited.

As for **claim 7**, Finarov discloses everything as above (see **claim 1**). He does not explicitly state measuring reflectance of the wafer and locating the edge of the wafer from a drop in the reflectance. He does suggest it for he states that the notch can be identified by any suitable method (col. 5, lines 10-12) and that reflected light is measured (col. 5, lines 63-67). Cheng in an apparatus for mapping the edge of wafer teaches measuring reflectance and locating the edge of the wafer from a drop in the reflectance (Fig. 2: 70; col. 8, lines 60-65; col. 11, lines 1-10). It would be obvious to one of ordinary skill in the art at the time the invention was made to have

the method comprise measuring reflectance and identifying a drop in reflectance in order to identify the notch feature on the wafer for prealignment.

As for **claim 9**, Finarov discloses everything as above (see **claim 1**). He is silent concerning measuring film thickness at the plurality of inspection areas on the wafer. However, Cheng in a wafer edge mapper teaches measuring film thickness (col. 7, lines 55-65). It would be obvious to one of ordinary skill in the art at the time the invention was made to have the method comprise measuring film thicknesses during edge detection in order to monitor the quality of processing during the particular fabrication process in the fab station.

7. **Claims 21, 22, 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Stone (4,593,406)**--cited by applicant.

As for **claims 21 and 22**, Stone in an image acquisition processor and method discloses the following: providing lateral movement of the optical system with respect to the sample through rotation of a servo read for translation of the microscope (Fig. 2: 62, 82, 76); providing relative rotational movement between the optical system and the sample (Fig. 2: 78); wherein the lateral movement and rotational movement permits the optical system to inspect a plurality of separate inspection areas on the sample and imaging at least one inspection area on the sample using the optical system (Fig. 1: four quadrants); rotating the image of an inspection area based on the relative angular orientation of the optical system with the wafer and images of different inspection areas, separate quadrants, are rotated by a different amount based on the respective angular orientation of the optical system with the sample for each image (Figs. 1, 3a, 3b). As for a wafer, Stone does not explicitly state the sample is a wafer for the Fig. 2 embodiment. However, he teaches inspecting miniature elements with a microscope/tv system (col. 1, lines 15-

23) and teaches image analysis for positioning of photolithographic devices (col. 3, lines 4-10) and positioning of wafers (col. 4, lines 50-55 and lines 63-65). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have the sample comprise a wafer in order to inspect miniature elements on the wafer via the microscope inspection system.

As for **claim 24**, Stone discloses everything as above (see claim 21). In addition, he discloses rotating the microscope system about a rotational axis that does not pass through the objective lens, the rotational axis that passes through the center of the servoread and center of pan (Fig. 2: 62 and 82). He is silent concerning an objective lens in the Fig. 2 embodiment. However, Examiner takes official notice that it is well-known in the art that microscopes comprise objective lenses. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have the microscope system comprise an objective lens in order to be able to form an image of the sample being inspected..

8. **Claim 23** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Stone (4,593,406)**--cited by applicant in view of **Sandland et al. (4,556,317)**—previously cited.

As for **claim 23**, Stone discloses everything as above (see claim 21). In addition, Stone discloses changing a rotation angle of the image produced by the optical system when there is relative rotational movement between the optical system (Figs. 3a-3b). He is silent concerning the orientation of features in the image remains constant. However, Sandland in a wafer inspection system teaches rotating images to correct for inspection changes (col. 16, lines 10-40). Therefore, it would be obvious to one skilled in the art to have the system have image correlation by rotating images to correct for inspection changes as the wafer is imaged at different locations on its surface and to keep images of the features constant due to inspection system changes.

Allowable Subject Matter

9. **Claims 3-6** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 15-20 would be allowable if rewritten to overcome the objections stated above.

As to **claim 3**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method for inspecting a wafer rotating images formed by the optical system, wherein each image is rotated by an amount that depends on an orientation of the wafer, in combination with the rest of the limitations of **claims 3-5**.

As to **claim 6**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method for inspecting a wafer rotating a portion of the stage about a rotation axis of the stage until a linear axis of the stage crosses through a center of a first of the inspection areas, in combination with the rest of the limitations of **claim 6**.

As to **claim 15**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method for inspecting a wafer holding the wafer in a stationary position; moving an optical system rotationally relative to the wafer; and locating an alignment feature on the edge of the wafer, in combination with the rest of the limitations of **claims 15-20**.

Response to Arguments

10. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. As for the allowable subject matter set forth in the previous action in regards to **claims 21-24**, Examiner apologizes for the inconvenience but upon

consideration of applicant's Information Disclosure Statement filed June 30, 2004 a rejection to **claims 21-24** has been made.

Conclusion

Several facts have been relied upon from the personal knowledge of the examiner about which the examiner took Official Notice. Applicant must seasonably challenge well known statements and statements based on personal knowledge when they are made by the Board of Patent Appeals and Interferences. *In re Selmi*, 156 F.2d 96, 70 USPQ 197 (CCPA 1946); *In re Fischer*, 125 F.2d 725, 52 USPQ 473 (CCPA 1942). See also *In re Boon*, 439 F.2d 724, 169 USPQ 231 (CCPA 1971) (a challenge to the taking of judicial notice must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying the judicial notice). If applicant does not seasonably traverse the well-known statement during examination, then the object of the well known statement is taken to be admitted prior art. *In re Chevenard*, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). A seasonable challenge constitutes a demand for evidence made as soon as practicable during prosecution. Thus, applicant is charged with rebutting the well-known statement in the next reply after the Office action in which the well known statement was made.

Fax/Telephone Numbers

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

- 1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and
- 2) Should be unsigned by the attorney or agent.

Art Unit: 2877

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (703) 872-9306

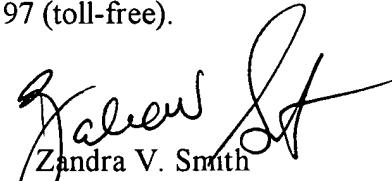
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DD
gs
June 10, 2005


Zandra V. Smith
Primary Examiner
Art Unit 2877